

1. Record Nr.	UNINA9910874683803321
Autore	Jose Babu T
Titolo	Proceedings of the Indian Geotechnical Conference 2022 Volume 7 : Geotechnics: Learning, Evaluation, Analysis and Practice (GEOLEAP)
Pubbl/distr/stampa	Singapore : , : Springer, , 2024 ©2024
ISBN	9789819727001 9789819726998
Edizione	[1st ed.]
Descrizione fisica	1 online resource (451 pages)
Collana	Lecture Notes in Civil Engineering Series ; ; v.491
Altri autori (Persone)	SahooDipak Kumar ShuklaSanjay Kumar KrishnaA. Murali ThomasJimmy VeenaV
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- Contents -- About the Editors -- Earth Retaining Structures and Deep Excavations -- Parametric, Seismic and Static External Stability Analysis of Mechanically Stabilized Earth Retaining Wall -- 1 Introduction -- 1.1 Mechanically Stabilized Earth Retaining Wall (MSE Wall) -- 1.2 Literature Review -- 2 Methodology -- 2.1 Analysis of MSE Wall Using GEO-5 -- 2.2 Input Parameter -- 2.3 Seismic and Static Analysis -- 3 Results and Discussions -- 3.1 The Factor of Safety (FS) Against Overturning and Sliding -- 4 Conclusion -- References -- Effect of Strip Footing on the Behavior of Sheet Pile Walls: A Numerical Study by ABAQUS -- 1 Introduction -- 2 Wall and Soil Profiles -- 3 Numerical Modeling -- 4 Numerical Model Validation -- 5 Results and Discussions -- 5.1 Determination of the Critical Width of Surcharge Load -- 5.2 Effect of Surcharge Position in the Horizontal Direction on Wall Deflection, BM, and GS Behavior -- 5.3 Effect of Surcharge Position in the Vertical Direction on Wall Deflection and BM -- 5.4 Effect of Wall Embedded Depth on Wall Deflection and BM -- 6 Conclusions -- References -- A Study on Excavation-

Induced Surface Settlement Due to Construction of Underground Station Box -- 1 Introduction -- 2 Literature Review -- 3 The Site and In-Situ Soil Stratification -- 4 Prediction of Surface Settlement -- 4.1 Peck's Method -- 4.2 Bowles Method -- 4.3 Hsieh and Ou's Method -- 4.4 KJHH Method -- 4.5 Clough and O'Rourke's Method -- 5 Case Study -- 5.1 Roof Slab -- 5.2 Upper Concourse Slab -- 5.3 Mechanical Slab -- 5.4 Lower Concourse Slab -- 5.5 Base Slab -- 6 Summary and Conclusions -- References -- Design of Slope Protection Works in the Third Reach of Vadakara-Mahi Canal -- 1 Introduction -- 1.1 Site Conditions -- 1.2 Geotechnical Investigation -- 2 Design Considerations -- 2.1 Secant Piles -- 2.2 Construction Sequence. 3 Finite Element Analyses -- 4 Summary and Conclusions -- References -- Seismic Analysis of Geofoam Backfill Retaining Wall -- 1 Introduction -- 2 Numerical Modeling -- 2.1 Generalization of Upper-Triangular Pattern and Rectangular Pattern -- 3 Results and Discussions -- 3.1 Seismic Analysis of Upper-Triangular Pattern -- 3.2 Seismic Analysis of Rectangular Pattern -- 4 Conclusion -- References -- Three-Dimensional Finite Element Analysis of Shankumugham Beach Road Due to Rainfall-Induced Storm Surge -- 1 Introduction -- 2 Site Condition -- 3 Modeling -- 4 Results and Discussion -- 4.1 Static Analysis -- 4.2 Dynamic Analysis -- 5 Conclusions -- References -- Analysis and Design of Cantilever Retaining Wall with and Without Pressure Relief Shelf -- 1 Introduction -- 1.1 General -- 1.2 Objectives -- 2 Methodology -- 2.1 Conventional Method -- 2.2 Soft Computing Method -- 3 Results and Discussion -- 3.1 Analysis and Design Results of Conventional Method -- 3.2 Analysis and Design Results of Soft Computing Method -- 4 Conclusion -- References -- A Critical Review on Static and Seismic Earth Pressure of Layered Soil on Retaining Wall -- 1 Introduction -- 2 Limit Equilibrium Analysis -- 2.1 Static Active Earth Pressure -- 2.2 Static Passive Earth Pressure -- 2.3 Dynamic Active Earth Pressure -- 2.4 Dynamic Passive Earth Pressure -- 3 Slip Line Method -- 4 Discussions and Conclusions -- References -- Tensile Force Distribution of Geogrid Reinforced BBMSE Wall: Numerical Analysis and Model Study-Prediction by ANFIS -- 1 Introduction -- 2 Model Tests -- 2.1 Materials Used -- 3 Validation -- 4 Parametric Study -- 5 Adaptive Neuro-Fuzzy Inference System (ANFIS) Model -- 6 Results and Discussion -- 7 Conclusions -- References -- Performance Analysis of Introjected Backfill Retaining Wall -- 1 Introduction -- 2 Numerical Modeling. 2.1 Loading and Boundary Conditions -- 2.2 Mesh Discretization -- 3 Results and Discussion -- 3.1 Model Validation -- 3.2 Influence of Length of Relief Shelf -- 3.3 Influence of Position of Relief Shelf -- 3.4 Influence of Backfill Soil Strength Parameters -- 3.5 Influence of Surcharge Loading -- 4 Conclusions -- References -- Influence of the Soil/Rock Conditions at Wall Toe on the Behavior of the Diaphragm Wall -- 1 Introduction -- 2 Site and Subsoil Conditions -- 3 Numerical Analysis -- 4 Field Monitoring -- 5 Discussion of Results -- 5.1 Validation of the Results (Subgrade Reaction Method) -- 5.2 Numerical Analysis (Effect of Varying Toe/Wall Depth) -- 5.3 Comparison with Inclinator Readings -- 6 Conclusion -- References -- Earth Pressure Reduction on Rigid Cantilever Retaining Wall Using Inclusions -- 1 Introduction -- 2 Experimental Program -- 2.1 Materials Used in the Present Study -- 2.2 Details of Experimental Model Study -- 3 Results and Discussion -- 4 Conclusions -- References -- A Numerical Study on the Abutment-Backfill System Subjected to Lateral Loading -- 1 Introduction -- 2 Numerical Simulation of the Abutment Foundation-Backfill System -- 2.1 Brief Description of Rohtak-Gohana Line Railway Bridge Project --

2.2 Validation of Sample Model -- 2.3 Description of the Main FEM Model -- 3 Results and Discussion -- 4 Summary and Conclusions -- References -- Geosynthetics Engineering -- Prediction of Geogrid-Reinforced Flexible Pavement Performance Using Numerical Analysis -- 1 Introduction -- 2 Numerical Modelling -- 3 Validation -- 3.1 Validation of 2D-Numerical Unreinforced Pavement Model -- 3.2 Validation of 2D-Numerical Geogrid-Reinforced Pavement Model -- 4 Results and Discussion -- 5 Conclusions -- References -- Effect of Construction Parameters on the Behaviour of Embankment Resting Over Soft Soil Improved with ESC. 1 Introduction -- 2 Numerical Simulation and Validation -- 3 Result and Discussions -- 3.1 Settlement Behaviour -- 3.2 Vertical Stress Distribution -- 3.3 Formation of Plastic/Failure Points -- 4 Conclusions -- References -- Numerical Analysis of the Lateral Behavior of Geogrid-Strengthened Pile Foundation System Subjected to Machine-Induced Vibration -- 1 Introduction -- 2 Numerical Modeling -- 3 Results and Discussion -- 3.1 Validation of Numerical Model -- 3.2 Dynamic Response -- 3.3 Nonlinear Behavior of Piles -- 4 Conclusions -- References -- Prediction of Bearing Capacity of a Footing Resting on Geo-Synthetic-Reinforced Soil Wall Using Artificial Neural Network -- 1 Introduction -- 2 Numerical Analysis -- 3 Data Collection -- 4 Determination of Model Input Parameters -- 5 Division of Data -- 6 Development of ANN Model -- 6.1 Optimizing the Number of Hidden Neurons -- 6.2 Building the Optimum ANN Model -- 7 Development of Equation to Predict the Ultimate Bearing Capacity of Footing Resting on GRS Wall on the Basis of the Trained ANN Model -- 8 Validation of ANN Model with PLAXIS 2D and Existing Literature Results -- 9 Calculation Procedure to Find Out the Ultimate Bearing Capacity of the Footing Resting on a Geo-Synthetic-Reinforced Soil Wall with a Numerical Example -- 10 Sensitivity Analysis -- 11 Conclusion -- References -- Finite-Element Analysis of Sand-Tire Crumbs Filled Geotube-Reinforced Embankments Subjected to Scouring -- 1 Introduction -- 2 Case Study Considered for the Analyses -- 3 Numerical Model Developed -- 4 Elements Used for the Analyses -- 5 Boundary Conditions and the Constitutive Model Adopted -- 6 Scouring -- 7 Results and Discussions -- 7.1 Validation -- 7.2 Horizontal Displacement -- 7.3 Settlement -- 7.4 Factor of Safety -- 8 Conclusion -- References.

Application of Geogrid for the Rock-Soil Interface Stability in Railway Embankments -- 1 Introduction -- 2 Numerical Model -- 2.1 Validation -- 2.2 Geogrids for Rock-Soil Interface -- 3 Parametric Study -- 3.1 Design Considerations -- 4 Conclusion -- References -- Soft Clay Treatment with Two Types of Reinforced Stone Columns: A Numerical Study -- 1 Introduction -- 2 Problem Definition and Numerical Modelling -- 3 Validation of the FE Model -- 4 Results and Discussion -- 4.1 Consolidation Settlements -- 4.2 Excess Pore Pressure -- 4.3 Vertical Stresses on the Granular Column and Soft Clay -- 4.4 Bulging of the Granular Columns -- 5 Parametric Analysis -- 6 Limitations of the Present Study -- 7 Summary and Conclusions -- References -- Use of Geosynthetics for Protection of B-Dyke in Dhakuakhana Along the River Brahmaputra, Assam-A Case Study -- 1 Introduction -- 2 Problem in Brahmaputra Basin -- 2.1 Geology and Seismology of Brahmaputra Basin -- 2.2 Flood and Bank Erosion Problem -- 2.3 Siltation and Water Logging Problem -- 2.4 Impact of Climate Change -- 3 Importance of Geosynthetics Materials in Its Various Forms -- 4 Life Expectancy and Future Scope of Geosynthetics -- 5 Importance of Flood Management Program and Benefits -- 6 Protection of B-dyke in Dhakuakhana Along the River Brahmaputra

in District North Lakhimpur Under FMP -- 6.1 Root Cause and Flood Problem at Matmara, Dhakuakhana -- 6.2 Solution Implementation -- 6.3 Construction of Embankment, Revetment, and Scour Apron -- 7 Protection of B-Dyke in Dhakuakhana Along the River Brahmaputra in District North Lakhimpur Under FMP -- 8 Material Design -- 8.1 Material Specification -- 9 Conclusion -- References -- Rockwool as a Potential Alternative to Conventional Geosynthetic Materials in Sustainable Ground Improvement Solutions -- 1 Introduction. 2 Comparison of Composite Rockwool Sample with Conventional Geosynthetics.
